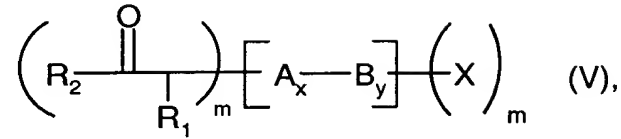


Claims:

1. A polymer or block copolymer of formula:



wherein

R₁ is hydrogen, C₁-C₄alkyl, cyano, phenyl or C₁-C₄alkylphenyl;

R₂ is the radical of an acylated, branched, trihydric alcohol, the radical of a fully or partially acylated, linear or branched, tetrahydric alcohol, the radical of a fully or partially acylated, linear, penta- or hexa-hydric alcohol, the radical of a fully or partially acylated, linear or cyclic C₄-C₆aldose or C₄-C₆ketose or the radical of a fully or partially acylated disaccharide;

A and B are polymer blocks of ethylenically unsaturated monomer units;

x and y denote the number of monomer units in the blocks A and B, one value of x and y being zero and the other value being an integer greater than zero, or both values x and y being integers greater than zero;

X is chlorine, bromine or iodine; and

m denotes an integer from three to six.

2. A block copolymer (V) according to claim 1, wherein

R₁ is C₁-C₃alkyl or phenyl;

X is chlorine or bromine and

R₂ is the radical of an acylated, branched, trihydric alcohol, the radical of an acylated, linear or branched, tetrahydric alcohol or the radical of a fully or partially acylated, linear, penta- or hexa-hydric alcohol,

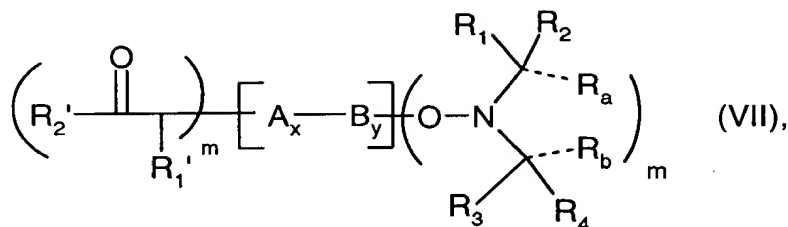
A and B are polymer blocks of ethylenically unsaturated monomer units;

x and y denote integers greater than zero and represent the number of monomer units in the blocks A and B; and

m is three or four.

3. A polymer or block copolymer of formula:

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wherein

R_1' is hydrogen, C_1 - C_4 alkyl, cyano, phenyl or C_1 - C_4 alkylphenyl;

R_2' is the radical of an acylated, branched, trihydric alcohol, the radical of a fully or partially acylated, linear or branched, tetrahydric alcohol, the radical of a fully or partially acylated, linear, penta- or hexa-hydric alcohol, the radical of a fully or partially acylated, linear or cyclic C_4 - C_6 aldose or C_4 - C_6 ketose or the radical of a fully or partially acylated disaccharide;

A and B are polymer blocks of ethylenically unsaturated monomer units;

x and y denote the number of monomer units in the blocks A and B, one value of x and y being zero and the other value being an integer greater than zero, or both values x and y being integers greater than zero;

X is chlorine, bromine or iodine;

m denotes an integer from three to six;

one of R_1 and R_2 is C_1 - C_7 alkyl and the other is C_1 - C_4 alkyl or C_1 - C_4 alkyl substituted by C_1 - C_4 alkoxycarbonyl or by C_1 - C_4 alkoxy; or

R_1 and R_2 together with the adjacent carbon atom are C_3 - C_7 cycloalkyl;

R_3 and R_4 have the meanings of R_1 and R_2 ;

R_a is C_1 - C_4 alkyl, cyano, C_1 - C_4 alkoxycarbonyl, C_1 - C_4 alkanoyloxy, C_1 - C_4 alkanoyloxy- C_1 - C_4 -alkyl, carbamoyl, mono- or di- C_1 - C_4 alkylcarbamoyl, mono- or di-2-hydroxyethyl-carbamoyl, amidino, 2-imidazolyl, 1-hydroxy-2-hydroxymethyl-2-propylcarbamoyl or 1,1-dihydroxymethyl-2-hydroxycarbamoyl; and

R_b has the meanings of R_a ; or

R_a and R_b together form a bivalent group and an aliphatic or aromatic heterocyclic group having 5, 6, 7 or 8 ring members, which can contain from 1 to 3 additional hetero atoms from the group nitrogen, oxygen and sulfur.

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4. A polymer composition comprising a polymer or block copolymer (V) according to claim 8, wherein R_1 , R_2 , A, B, x, y and m are as defined, and additives customary in polymer compositions.

5. A polymer composition comprising

a) a polymer or block copolymer (V) according to claim 1, wherein R_1 , R_2 , A, B, x, y and m are as defined; and

b) a further polymer or oligomer of formula



wherein

A and B are polymer blocks of ethylenically unsaturated monomer units and x and y denote the number of monomer units in the blocks A and B, one value of x and y being zero and the other value being an integer greater than zero, or both values x and y being integers greater than zero.

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6. A process for the preparation of a polymer or block copolymer (V), wherein R_1 , R_2 , A, B, X, x, y and m are as defined in claims 1 and 8, in which process ethylene-group-containing aliphatic monomers that form the basis of the polymer blocks A and B are subjected to a polymerisation reaction by atom transfer radical polymerisation (ATRP) in the presence of the α -halocarboxylic acid ester (I) as polymerisation initiator, wherein R_1 , R_2 and X are as defined above, and in the presence of an oxidisable transition metal complex catalyst.

7. Use of a polymer or block copolymer (V) in the preparation of a polymer or block copolymer wherein $\bullet X$ is replaced by an open-chain or cyclic group $R'R''N-O\bullet$.